Urban challenges in focus

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Urban Challenges in Focus

On building a sustainable polyphonic knowledge infrastructure through the orchestration of being and bearing witness in public research and city science trajectories, and exploring rhythm as solution space, in the networking city of Amsterdam.

Caroline Nevejan


Statices, L.
Forester.
Lithosiidæ,
SETINA, St.
Trifolii, E
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Confusalis, H.-S
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Senex, Hb.
Mundana. L.
The Muslin.
Irrorella, Clerck
Dew Moth.
Miniata, Forst.
Rosy Footman.
EMYDIA Bdv.
Euchelidæ,
Quadra, L.
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On building a sustainable polyphonic knowledge infrastructure through the orchestration of being and bearing witness in public research and city science trajectories, and exploring rhythm as solution space, in the networking city of Amsterdam.

Colofon

This text is Caroline Nevejan's farewell address as chair of Designing Urban Experience at the University of Amsterdam and Chief Science Officer of the City of Amsterdam.
A shorter version was given on the 26th of June 2025.

Amsterdam, June 2025

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Mr. Rector Magnificus,
Madam Dean,
Members of the Curatorium of the Chair of Designing Urban Experience,
Colleagues, friends and family,
Ladies and Gentlemen,

Thank you all for being here. After more than eight years as Chief Science Officer of the City of Amsterdam, and seven years holding the chair of Designing Urban Experience at the University of Amsterdam, it is time to say goodbye. But first, in this closing lecture, I would like to reflect on what the two positions have meant.

In my inaugural address, I spoke about Lorenzetti's fresco depicting good and bad government. Six centuries ago, he showed us that to build a good city, its justice, rules and rhythms must tune to the nature around it. The smart city of Amsterdam was born in one of nature's great storms, and was defined for centuries by the sea's tides.[1] Today, it must rediscover its rhythm, and build the experience necessary to survive any future existential storms. In my inaugural address, I argued that if we want to design 'good government' for the 21st century, we need to ensure that it is reflective, diverse and rhythm based.

Seven years after that address, existential storms are again gathering on the horizon, and together with many of you present in the hall today, we have acquired various insights into how to orchestrate essential reflection and diversity, and to use rhythm as a space for solutions. In the coming 40 minutes, I will share my thoughts on these issues.

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[1] Gawronski J. 2018. Born from a storm, the earliest history of Amsterdam archaeologically and landscape illuminated. *Yearbook Amstelodamum 109,* Amsterdam. (Dutch publication)

Living on an Exponential Curve

My life has taken place in an age of profound global transformation. When I was born, the world population was 2.9 billion; while in 2025, it exceeds 8.2 billion. Resources such as space, food and energy must now sustain three times as many people as seven decades ago. And the pace at which science has developed new technologies has also followed this same exponential curve. In tandem, there have been incredible inventions in information and communication technologies, but also for example in agriculture, water management, and building infrastructure. This was accompanied by a sense of freedom, which has been heralded in East and West, and in North and South. It has also influenced urban life, with cities growing into complex systems, and thereby reshaping how we understand causality and connection.[2]

Progress and erosion

I was lucky enough to grow up in the Netherlands during the 80 years of peace following WWII. I lived to witness the normalisation and acceptance of being gay, of women entering the workforce, of racism being acknowledged and combatted, and the United Nations viewed as a beacon of hope.[3] But in recent decades, the values of solidarity,

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[2] My era of life has been characterized by the curve of Salk & Salk, which shows the exponential growth explosion of the world's population in relation to a change in world values. Salk & Salk argue that as a result of this exponential growth of population, world values for survival are changing and moving from conquering to collaborating, from a win/lose paradigm to a win/win paradigm and a more balanced way of life. This argument has inspired me for many years.
Salk, J., & Salk, J. (2018). *A new reality: human evolution for a sustainable future.* Simon and Schuster.

[3] In the 1960s, 70s and 80s the Dutch society was a social democracy in which the old liberals who were in charge felt full responsibility for the rule of law. They treated protesting young people with respect. These were also the years of decolonization around the world, of empowerment and emancipation, and the array of different cultures in the Netherlands changed as well.

truth and justice have been partially eroded under the pressures of speed, greed, expediency, and force.[4] So how do we prepare future students to navigate and resist the negatives of such a world?

When I was young in the early 1980s, I had long conversations with Professor Cees Braams[5], who was a scientist working on nuclear fusion. He believed that this was the cleanest energy that could meet the needs of humankind. He also believed that by participating in policy advice, the harmful effects of nuclear waste could be mitigated. However, I argued that humanity lacked the ethical capacity to manage nuclear waste in a responsible way, or to prevent nuclear war. Half a century later, I realise that, like Braams, I was deeply involved in policy making, not in the field of nuclear energy, but in damage control to the emerging network society. This is because the new network society offers incredible opportunities for communication, but it can also be viewed as a 'social atom bomb', that could potentially cause huge damage to global mental health and undermine constitutional states and their rule of law.

Logos and ethos in balance

Since the 1980s, scholars such as Arie Rip[6] and Jeroen van den Hoven[7] have tried to include the principle of ethical reflection on the impact of

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[4] When the Berlin Wall fell, the American West celebrated with capitalist triumphalism, leaving little dignity for 'die Ossies'. What followed was a rush to buy up Eastern Europe at bargain prices – another blow to the defeated. Sun Tzu's *Art of War* teaches that true victory allows an enemy to retreat with honour: 'Build your opponent a golden bridge to retreat across.' Humiliating a defeated foe only sows the seeds of future conflict.
Sun, T. (1994). *The art of war.* Basic Books.

[5] Prof. Dr. Cees Braams was professor of Plasma Physics at the University of Utrecht. He was also director of the FOM Institute for Plasma Physics Rijnhuizen.

[6] Rip, A., & Robinson, D. K. (2013). Constructive technology assessment and the methodology of insertion. In *Early engagement and new technologies: Opening up the laboratory* (pp. 37-53). Dordrecht: Springer Netherlands.

science in approaches such as the Constructive Technology Assessment and the Value Sensitive Design. Likewise, in the Laboratory of the Future, the curator Lesly Lokko has convincingly showed how the sciences have played a significant role in the colonization of people, and the destruction of nature around the world, from historical times to the present day.[8] However, the impact of research is still mostly seen as a byproduct, not as a core responsibility. So today, we need to be aware of the impact of the principle of scientific *logos* on society if *ethos* has not been embedded. Only now is this awareness slowly starting to change our scientific methodologies.

In these last eight years as CSO, I have learned that a research process in which *logos* and *ethos* are merged can be accommodated in a local context that involves diverse local stakeholders. Together with the CSOs of many cities in Europe, and with the Directorate-General for Research and Innovation of the EU Commission, it has now been possible to formulate this concept as 'City Science'.[9] City Science is not yet a discipline it its own right, but it is specific scientific practice that may lead to a paradigm shift. City Science entails orchestrating the process of the 'collaborative authoring of outcomes' among different stakeholders, while drawing on a variety of scientific methodologies to find solutions for the urban challenges that these stakeholders face.

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[7] Van den Hoven, J., Vermaas, P. E., & Van de Poel, I. (2015). *Handbook of ethics, values, and technological design.* Springer

[8] 18th Architecture Exhibition of La Biennale di Venezia, curator Lesley Lokko's statement can be found here: https://www.labiennale.org/en/architecture/2023/introduction-lesley-lokko (accessed 25th of April 2025).

[9] https://openresearch.amsterdam/en/page/63027/2020-csi-city-science-for-urban-challenges (25th of april 2025)

[10] https://www.ivir.nl (accessed 25th of April 2025).

[11] https://en.wikipedia.org/wiki/Gerard_de_Zeeuw (accessed 25th of April 2025).

[12] https://www.uva.nl/en/profile/n/e/c.i.m.nevejan/c.i.m.nevejan.html#PhD-supervision (accessed 25th of April 2025).

The value of scientific niches

Despite the occasional frustrations with bureaucracy, and the limited attention for social impact, I have been connected with the University of Amsterdam for almost fifty years. I realise that this is because of its openness and readiness to accommodate niches – spaces where a small group of people can engage deeply to bring a new idea into the world. I was fortunate enough to encounter a few of these myself. Some would flourish, such as the Institute for Information Law[10] that was initiated by Nico van Eijk; while others would fade, such as the cybernetics group that was centred around Gerard de Zeeuw in Andragogy, and which would later move to the London School of Economics.[11] But all of these niches mattered, such as the PhD club centred around my promotor Cees Hamelink. In these seven years that I have held the chair of Designing Urban Experience[12], I have supervised six PhD candidates together with other faculty members. My niche has been characterized by its research-through-design approach focused on the relationship between social science, technology, data science and design.[13] Nurturing niches is where genuine transformation begins,[14] and this engagement has guided my life – as a student, researcher, public servant, and professor.

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[13] Two PhDs are involved in the rhythm research. Firstly, Pinar Şefkatli, who I supervised with dr. Olga Sesneva, successfully defended her dissertation *City Rhythms in Action*, and was responsible for the ethnographic part of the rhythm studies. Secondly, Katya Letunovsky, who I currently supervise with prof. Eelke Heemskerk, is now developing her PhD to cover the data science aspect of the rhythm study. In addition, two PhD candidates are engaged with my endeavour to create meaningful online interactions: Ino Paap, who I supervise together with Sabine Niederer and Eelke Heemskerk, are both considering how meaning emerges in online environments. Further, Juan-Carlos Goilo successfully defended his PhD dissertation in 2024. In his dissertation, which I supervised with Geert Lovink, Goilo elaborates on how detrimental power relations are reproduced when making monitors and

Paradigms of Human Experience

My current research is underscored by my 2007 dissertation, *Presence and the Design of Trust*.[15] Here, I introduced the YUTPA framework, exploring how trust is shaped in the merging of online and offline realities – across time, place, action, and relation. Inspired by Antonio Damasio's work, I defined presence as the capacity to steer towards well-being and survival.[16] I found that 'being' and 'bearing witness' are essential to establish trust and truth as basic values in our world, including in the legal profession, journalism, and in our reciprocal relationship with nature. Being and bearing witness also involve a strong dynamic in the sciences. They underlie principles of validation and falsification.

Witnessing in different paradigms

Bearing witness is the basis of our social structures, yet these are currently being rapidly transformed under the pressures of accelerating information and communication technologies. We are caught in a clash between human, natural, and artificial intelligences – disrupting the foundations of both human experience and the rule of law.

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suggests strategies to prevent this from happening. Also, two PhD candidates are writing dissertations on rights. Firstly, Aysegul Binali, who I supervise with dr. Floris Vermeulen, is studying how children who are in a crisis environment can be allowed to execute their capabilities to steer towards their own well-being and survival. Secondly, Debra Solomon, who I supervise with prof. Maria Kaika, is studying how infrastructure activism can help position the more-than-human actors to become part of city development and governance, arguing for a Multispecies Urbanism. (Reference Şefkatli, see note 36. Reference Goilo, see note 65.)

[14] These niches resonate with Thomas Kuhn's idea of scientific revolutions. Before a new discipline crystallizes, multiple experiments and efforts may fail. The support of niches takes perseverance and political courage. The leadership of the University of Amsterdam has nurtured vital innovations by allowing these niches to emerge.

Today, speed and profit reign in the digital Wild West. Consequently, the more data that is gathered, the more the manipulation of people is possible, and the easier money can be made. And the more similar that all users are, the easier it is to develop new markets anywhere and anytime, and the more likely it will be that a monoculture becomes predominant and human diversity is erased. As the Indian digital innovator Sunil Abraham stated, before the internet there were thousands of stories about the historical Indian avatar Rama. After Disney and Facebook, only a few remained.[17]

Therefore, I explored three paradigms of human experience to better understand the impact of this digital development, and the merging of offline and online realities in how we bear witness to each other:[18]

1. Humans as the Measure of All Things

In this oldest paradigm, people bear witness to each other and directly share joy, pain, and responsibility.[19] As witnesses, we share responsibility for what happens next. This paradigm underlies concepts of human dignity, the unity of body and mind, fundamental rights, and the Universal Declaration of Human Rights, born from the trauma of WWII.

Kuhn, T. S. (1997). *The structure of scientific revolutions* (Vol. 962). Chicago: University of Chicago press.

[15] Nevejan C. (2007). *Presence and the Design of Trust.* Dissertation, University of Amsterdam

[16] Damasio, A. R. (2003). *Looking for Spinoza: joy, sorrow, and the feeling brain.* Houghton Mifflin Harcourt.

[17] Sunil Abraham is one of the experts I interviewed for the study into bearing witness. Transcript and film fragments can be found here: https://www.being-here.net/page/1408/sunil-abraham--online-life (accessed 25th of April 2025).

[18] I introduced these three paradigms in the opening session of the World Social Science Forum, 13-15 October 2013 in Montreal. I co-curated this 'Plenary 1, Participatory dynamics for change', together with my second PhD supervisor, prof. dr. Sally Wyatt.

2. Humans as Measurable Beings

Here, experience is shaped by data: including statistics, medical records, and monetary value. What can be measured defines what matters. These metrics, drawn up by experts and institutions that are trusted, create the norms that we adapt to, and influence how we see ourselves and others. For example, markets are based on metrics that are regulated by laws and trade agreements.

3. Humanity as real-time measurable entity

This emerging paradigm is defined by data feedback loops. Mobility apps suggest new routes in traffic, while algorithms personalize content. But as comfort increases, memory, awareness, and human connection fade. We become information to each other, without responsibility *for* each other. Algorithms gather data but do not bear witness. And so, as misinformation spreads and systems collapse, we must ask ourselves: can ethics and international law keep pace?

Being and bearing witness awaken compassion, solidarity, and courage. All three of the paradigms shape our lives, but the third is rapidly gaining dominance, while it does not actually foster human

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[19] Philosopher Kelly Oliver argues that the quality of being and bearing witness is defined by a clarity of subject position (one cannot testify about being a baker if you are a nurse), and by the reciprocal process of addressability and the responsibility of those who bear witness to each other. Oliver, K. (2001). *Witnessing: beyond recognition.* University of Minnesota Press.

[20] From the 1960s on, mass-communication developed into an entire new set of tools for amusement and information, on the one hand, and for influencing people, on the other. The spreading of American culture was intense in our part of the world, whereby we could all amuse ourselves to death as Neil Postman (2005) argued. In other parts of the world, the Russian presence dominated with its revolutionary constructivist boy scout imagery. Because the decolonization was televised in many places, other realities also surfaced,

dignity. It treats people as a source of information and aims to nudge human behaviour to the maximum advantage for money and power. To combat this, the European Commission has seriously challenged the exploitation of personal data – fighting to uphold the rule of law and prevent the winners from taking all. Too often, tech development has followed American market values, sidelining European traditions of community and the public domain.[20] In Europe, and in many other places, bearing witness remains vital. It makes communities thrive in many thousands of neighbourhoods and small towns.

The civil servant as a witness

When I was selected to be the CSO, I was very honoured to become a civil servant for the City of Amsterdam, like many of my colleagues. I had never previously been a civil servant and found that in this role, these three paradigms merge in quite a remarkable way. On the one hand, civil servants must be obedient to the hierarchy, in which the words of the mayor and aldermen are decisive, according to sound democratic principles. Because they are the algorithm, as it were, by which the official organization functions. In this functioning, metrics and statistics create most of the evidence upon which policymaking is based and individual experiences are considered merely as incidents. Only when there are many similar experiences will policy start to adapt. On the other hand, in addition to loyalty and service to the City of

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and the call for 'a more balanced flow of information' was debated in the United Nations. This was a hopeful development because it acknowledged the many cultures around the world. With the fall of the Berlin wall, this all changed dramatically when the USA claimed victory. Only 15 years later, in 2004, a turning point in the EU-USA digital relations came when EU Commissioners Mario Monti and Neelie Kroes fined Microsoft €477 million for abusing their dominant position in the market – asserting Europe's right to defend its digital public space.

Postman, N. (2005). *Amusing ourselves to death: Public discourse in the age of show business.* Penguin.

[21] Lane, J. E. (2002). *New public management: an introduction.* Routledge.

[22] During workshops on the YUTPA framework with civil servants from different departments of the municipality, it became clear that distrust

Amsterdam, a civil servant also takes an oath of office to form an independent judgment of the moral rightness of their actions.

As a civil servant, you are one of the many, many, many little cogs that can only be effective in relation to the other cogs. As a civil servant in the city's administrative organisation, I bear witness to my colleagues as collaborators, but we also represent and uphold 'the system' for each other. Together, we create the reliability of government, while being vulnerable to colleagues, too. Unless there is robust and just leadership that defends individuals within the system according to the rule of law, distrust and abuse will spread like a virus. And as we know from history, systems do not bear witness, and can easily be used to grind down individuals, while others watch and stay silent.

Currently, the philosophy of New Public Management is embraced by most public administrators in the Netherlands.[21] It places a strong focus on efficiency and effectiveness, and it has acquired new agency in the digital era. This is because in digital communication, all activities and transactions are logged. This seems like a great strategy for the responsible spending of public money. However, if workers have no privacy, and they are not allowed to have doubts or make a mistake, and if they cannot bear witness to each other and to what happens around them, they will stop taking responsibility. In such a case,

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between colleagues was the main issue that men were concerned about. More information about these workshops can be found here: https://openresearch.amsterdam/en/page/90650/designing-trust (accessed 25 April 2025)

The essay in which I explain the theoretical underpinnings of this framework can be found here: https://openresearch.amsterdam/en/page/95507/shaping-trust-essay (accessed 25 April 2025)

Nevejan C. (2023). *Shaping Trust,* published by the City of Amsterdam

[23] Amsterdam, Rotterdam, The Hague, Zoetermeer, Helmond, Zaanstad.

[24] https://www.ams-institute.org (accessed 25 April 2025)

[25] Nevejan, C., Şefkatli, P., Paola Crespi, & Sunil Manghani. (2020). City rhythms: an approach to urban rhythm analysis. *Rhythm and critique: technics, modalities, practices,* 218-241.

the human dignity of the employee will be in jeopardy. As a result, colleagues will not trust each other and the performance of the whole organization will decline.[22]

When the system dominates, all those involved become mere followers of whatever leads. This leaves politicians in a vacuum, with a seemingly efficient civil service in place to execute their wishes and decisions, but which is severely handicapped by a foundation in hyper-control. This apathy will be exacerbated by disinformation, marketing messages, fake news and propaganda, which have become part of our daily media menu. How can we escape this?

Local trade-off for trust and truth

In my perception, local trade-offs for trust and truth are vital. Locally – as in my street, in my team, in my school – we can perceive with our senses, and we can see with our own eyes what should happen next. We can have compassion and stand in solidarity with each other. Locally, we can be and bear witness, we can share responsibilities and help each other to stand up for justice. Sharing local knowledge, and local trade-offs for trust and truth, can be a serious counter force to increasing distrust and control. This is one of the reasons why I initiated openresearch.amsterdam. I will come back to this later.

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[26] The Amsterdam case study dealt with why single mothers were not using available subsidies. Interviewing these mothers revealed that their daily routines did not match the city's office hours and that it was difficult to wait in line with young children and crying babies. By studying their daily rhythms, it became clear that the mothers regularly visit certain community spaces. As a solution, civil servants now visit the mothers at those places, where others can help with childcare, making it easier for them to apply.
The Zaandam case showed how insights into rhythm can correct false assumptions. A group of young people that gathered daily on a neighbourhood square was thought by the local shop-owners to be unemployed and a nuisance. During the research, it became clear that they had jobs and only briefly came to the square after work on their way home. Simultaneously, rhythm analysis showed that the square was extremely busy with traffic and

After all, being and bearing witness are refined processes. In shared spaces, we unconsciously tune our breath, movement, and speech. We align in microseconds. And tuning rhythms is the first step in establishing connection both online and offline. Sharing rhythm particularly helps to build trust among strangers. In addition, rhythm as a field of study or policymaking is another way to evade privacy violations. In my research over the past decade, I have considered rhythm as an urban force for problem-solving, applying insights from the arts, humanities and data science.

Designing Rhythm for Social Resilience

Rhythm is central to how we experience the world. Nature and the cosmos follow rhythms – day and night, seasons, the rising sun. Our bodies also follow rhythms, like breathing and heartbeat. Local cultures are shaped by the rhythms of their environment. However, technology seems to free us from natural rhythms. With electricity, constant connectivity, fast transport, global food supply, and advanced medicine, we no longer have to live by nature's pace. However, our health still depends on these natural patterns, and today more than ever, we see the harm that is caused when nature's basic rhythms are disrupted. Cities have become complex systems in which the self-organization of the millions of local interactions of residents, visitors

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shoppers, creating a sense of annoyance between 5 and 6 PM, exactly the timeslot when the young people came together. After it was made clear that there was no valid link between the busyness of the square and the presence of the young people, shop owners and civil servants worked together to improve the square's layout to reduce the sense of obstruction.

[27] Thomas, K. (2000). *The Road since Structure.* University of Chicago Press

[28] We defined a social beat as a moment of change – whether small, like going to school, or large, like replanting a neighbourhood. Social rhythms emerge from these moments. Neighbourhoods with similar rhythms often need similar services. We then defined 'base rhythms' – daily activity patterns in 500x500 meter areas – using CBS microdata. Interactive animations to visualize these base rhythms, created by designer Erik Boertjes, were part of the development of the concept.

and businesses create spatiotemporal trajectories that constitute the dynamics of the city. And these spatiotemporal trajectories are often rhythm based.

Base rhythms as urban potential

With the input of civil servants from the security departments of six Dutch cities[23] and the AMS Institute[24], I began researching rhythm in collaboration with PhD candidate Pinar Şefkatli. In 2016-2018, we conducted nine case studies, together with teachers and students from the Leiden-Delft-Erasmus minor in Responsible Innovation; these case studies revealed unexpected design solutions, leading to a new method for rhythm analyses, which we named the Urban Rhythm Analysis.[25]

Rhythm analysis examines how people move through space and time, and analyses patterns and rhythms, according to whatever question we ask. For example, a Rotterdam case study dealt with the fact that elderly residents in a care home did not visit the park across the street. It was assumed that they were too tired or immobile, but they enjoyed a park visit when students offered to walk with them. The problem proved to be the short duration of the green lights at the crossing, which city officials stated was needed to accommodate rush hour between 8AM and 9AM. However, the residents communicated that they only wanted to walk after 10AM. So, the solution was agreed upon to adjust the (rhythm)timing of the traffic lights.[26]

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[29] A meadow seen from a train is a very different experience from walking through that same meadow, and this changing speed has deep implications for society. Philosopher Paul Virilio argued that speed is the primary force shaping civilization.
Virilio, P. (2006). *Speed and politics.* MIT press (first published in France in 1977)

[30] Improvising musicians can be studied as a model for social dynamics: they make space for others, trust the unknown, value difference and share the first beat.

[31] In 2019, I was asked to lead the complementary research program for the Dutch contribution at the Venice Architecture Biennale in 2020, and named the research program *Values for Survival*, believing that crises are inevitable, and cities need to prepare. I argued that shared values help us to support one another in times of crisis. Therefore, I intended to use this

Urban Rhythm Analysis uses methodologies from architecture, social science and data science to formulate a rhythm perspective for a specific issue, which then functions as a boundary object, as the start of a dialogue between stakeholders. Such rhythm analyses offer insight into a systems dynamic, without any simplistic moral judgement, and allows for identifying possible solutions, which often appear to be straightforward, but which have not previously been considered. Previously, the philosopher Thomas Kuhn suggested that when people recognize each other's spatiotemporal trajectories, they can develop shared concepts and language within communities of practice.[27] A city can be seen as such a community, where people need to recognize each other's rhythms to build mutual understanding and communication.

As part of the same project, we worked with civil servants to examine how city data reflect street life. Together with Professor Scott Cunningham, we spent a great deal of time on data acquisition and aggregation, and mapping datasets on the YUTPA framework. Using mostly microdata from Statistics Netherlands, and based on a Hidden Markov Model, we ultimately discovered that the Tulpstraat in Helmond, for example, shares its rhythm with areas in all six cities. Ultimately, seven base rhythms were identified across six Dutch cities.[28] In our final seminar, Cunningham suggested renaming these base rhythms 'Urban Potential' because each of them has a specific profile in city resilience and crisis planning.

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special exhibition as a learning environment for civil servants. Then COVID-19 broke out, the Biennale was postponed, and I had to redesign the program. In collaboration with design scholar Huda AbiFarès and with environmental scientist Jane da Mosta from We Are Here Venice, we designed the so-called Venice Exploratorium. In the spring and summer of 2020, twelve groups worked online for six months, each including a scientist, an artist, and at least one Venetian. Artists were paid and others volunteered in solidarity with the arts during the pandemic. In the Venice Exploratorium, each group developed its own rhythm to build trust. Older participants used letters and phone calls, while younger ones turned to Slack and WhatsApp. It appeared that online creative rhythmic reciprocity in sharing music, poetry, and images helped to foster strong collaborations. Ultimately, all twelve projects created impressive results and left a mark in Venice as well. *Arsenals of Globalization, Tides of*

Sharing the first beat

Further insights into rhythm originated from working with Tabla master Sirishkumar Manji. In a variety of workshops at Performing Arts Labs London, we explored the perception and construction of rhythms in the world. The Tabla rhythm of the elephant, for example, consists of steady steps, but a faster version of the same rhythm communicates running horses, pointing to the fact that speed changes the identity of what we perceive.[29] In the Cambridge workshop with the Centre for Music and Science, we explored how a diversity of rhythms can merge, and we found that this is possible provided that each of these rhythms shares the first beat. Like birds at dawn or a New Year's celebration, sharing the first beat creates connection in diversity.[30] In music, there is deep knowledge of tuning to others, offering entrances, recognizing riffs and ragas, and sharing the first beat.

I had other opportunities to delve deeper into the artistic knowledge of rhythm in the context of the Venice Architecture Biennale[31] in 2020, and in a rhythm research residency in Japan[32] in 2024. Only then did I realize that climate change actually causes a change in rhythms of life itself, which in turn causes drastic changes in the environment, in supply chains, and in community and family life.

Tourism, Talking Sands, Forbidden Garden, Radical Observation, Space of Other, Scripts of the Lagoon, St. Erasmo 2038 and more. All this work has been documented on openresearch.amsterdam, and in 33 folders in the three Cahiers that were published by Het Nieuwe Instituut. The ultimate Value for Survival appeared to be tuning – tuning to self, tuning to others. To tune or not to tune, that is the question. https://openresearch.amsterdam/en/page/52688/values-for-survival-2020-2021 (accessed 25th April 2025).

[32] In September 2024, I was a researcher-in-residence at Llove House in Onomichi, a small port town in Japan. During the residency, I discussed rhythm with architect Joe Nagasaka and curator Suzanne Oxenaar. In Japan, where rules and structure are strong, the challenge is making space for variation. The rhythm definition of Dutch philosopher Marli Huijer guided the research: 'Rhythm is the variation in a pattern in a given structure.'

In my work, I have found that artistic research offers a radical realism, a non-conceptualism and contingency that research in other faculties does not.[33] Fortunately, in all my studies, I have had the privilege to connect with professional artists who were willing to engage with my research questions, and who contributed significantly to the final research results.

Rhythm in data

From 2019-2024, I led the interdisciplinary research team, Designing Rhythm for Social Resilience, together with Professor Alessandro Bozzon from Delft University of Technology and the data company Habidatum.[34] This research was funded by the Dutch Research Council. From the start, the rhythm research combined large datasets with ethnographic insights. Hereby, validating the one with the other involved a time-consuming process to create consistency and conceptual alignment between both approaches. But ultimately, philosophy proved to be a fertile ground for shared concepts, bridging social and data sciences.

The scientific work began just before the COVID-19 pandemic in 2020, after much research time had been invested in the data acquisition process.[35] The first trial, which was related to the problem of space restrictions because of the Covid lockdown, was the Social Distancing Dashboard, designed by team member Achilleas Psylidis from Delft University of Technology, which measured physical distances between

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In conversations with calligrapher Tamako Murakami and organizer Natsuko Matsui, we reframed rhythm in Japanese as: 'rules moving – in a given structure – patterns emerge – variation is born.' Nagasaka later said that rhythm gave a name to something he had long felt but could not express. In this residency, I interviewed older women about the rhythms of their lives, and climate change came up in every conversation. 'The fish are swimming north – we have to change our business,' said the lady who owns a fish-cookie shop in Onomichi. The lady who runs a popular Instagram teahouse house reflected 'We no longer have seasons – just hot and cold remain,' mourning the loss of the traditional twelve-season tea ceremonies. I realized that climate change, at its core, is about shifting rhythms. https://openresearch.amsterdam/en/page/116656/drsr-take-off-research-in-japan (accessed 25th April 2025).
Huijer, M. (2012). *Ritme: op zoek naar een terugkerende tijd.* Boekencentrum.

buildings. It was a very interesting exercise and relevant to a series of questions, but the results did not align with Amsterdam Public Health's (GGD's) Covid infection data.

We then further developed the Rhythm Spheres concept based on Peter Sloterdijk's work, distinguishing between three areas: firstly, Bubbles (family and close friends); secondly, Foams (networks and activities); and thirdly, Globes (public spaces with many people). We learned from the ethnographic research that people found the hardest part of lockdown to be the loss of 'foamy activities' – sports, and religious, social, and cultural gatherings, usually close to home.[36]

Ultimately, we created the foam-index, showing community rhythms over time. We bought mobile phone location data, which did not give any personal details, yet showed whether or not locations had become busier. Together with Habidatum, we then created an algorithm that combined frequency of visits, distance from home, and dwell-time and called this the Foam Index. This revealed how community rhythms changed over time, and we found that it resonated with the lockdown measures. This was important because knowing the rhythms in a neighbourhood allows for policymaking in times of crisis to respect such rhythms and diminish harmful effects on personal lives. This part of the rhythm research has been an inspiration to the colleagues that are now working on future crisis preparations for Amsterdam.[37]

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[33] Borgdorff, H. (2012). *The conflict of the faculties: Perspectives on artistic research and academia.* Leiden University Press.

[34] The research team consisted of: Alessandro Bozzon, Achilleas Pylidis, Sergei Zhilin from TU Delft's Human AI group, data experts Alexei Novikov and Katya Letunovsky from the data company Habidatum, architecture PhD candidate Pinar Şefkatli, and myself at the University of Amsterdam. Partners included different departments of the City of Amsterdam: the Public Health Department, district Amsterdam Zuidoost, and the Statistics Netherlands. Significant support was also given by the AMS institute. The research team held regular sessions, mostly online, continually asking 'What do you mean?' to push the boundaries of our interdisciplinarity.

[35] Understanding how the European General Data Protocal Regulation (GDPR) should be applied in practical terms was at first an issue of serious debate between different privacy officers. This took more than 10 months of negotiations, much more research time than we had anticipated.

Social sciences and design

To conclude this section on my scientific work, I realise that while I love the theoretical pirouettes, I do have quite a 'pragmatic approach' to social science. In my perception, social-scientific analyses should deconstruct and demystify, welcome insights from other disciplines, and offer frameworks for understanding specific situations, which will then lead to interventions and design. However, many scholars in the social sciences and humanities do not proceed after the analysis stage, and do not embrace design as a fundamental dimension of their body of knowledge. Similarly, the design faculties that exist in technical universities treat the social sciences as one of the many 'materials' that they can use, and do not see them as fundamental to their work. I have occupied the interdisciplinary space between social sciences, art and design since the beginning of my studies. And my many years outside academia have strengthened my position even more.

It is clear from all of my different research ventures that my focus has always been on the emerging new paradigms of human experience in relation to how we bear witness to one another. Because through witnessing, I argue, we can embed the new ethics that we need to develop in the emerging lightning-fast AI era, if we want to continue to embrace human dignity as a core value of the global society we inhabit.

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[36] Pinar Şefkatli wrote her dissertation on the ethnographic rhythm research that we conducted within the context of DRSR. In her dissertation, she describes: Rhythm Zones as rhythms in physical areas; Rhythm Scapes as organizational rhythms; and Rhythm Spheres as spatiotemporal trajectories of relationships. One factor that was pivotal for this study was the collaboration with the borough of Amsterdam South-East. Special thanks are due to civil servants, Merrel Hoefdraad and Janice Milan. Merrel has been engaged with this research since 2016. The home base for this research was at the community centre Ala Kondre. Therefore, special thanks are also due to Ala Kondre's directors, Lydia and Mireille Seedorf.
Şefkatli, P. (2024). *City rhythms in action: advancing the methodologies and concepts for a spatio-temporal perspective on the urban social context,* dissertation, University of Amsterdam.

Public Research in Paradiso

From 1988-1999, it was my honour to be the social-political programmer of the musical venue Paradiso.[38] The few hundred shows that I made included a wide array of people of all generations and varied cultural backgrounds. These included activists, who would bring urgency, journalists who would bring facts and analyses, scientists who would bring a larger context and historical perspective, politicians who would bring the power to influence, skilled workers who made it real, and artists who would help to reframe the issue in new ways.

Collaborative authoring of outcomes

In big international shows like the Galactic Hacker Party[39] and the Seropositive Ball[40], I would formulate a 'third point' to which everybody could relate, and inspired by Aristotle's *Rhetorica*, invite and convince the 'crucial network' to participate: that is, all those who contributed to the current state of affairs, and all who had the power to effect change.[41] In addition, an edit group[42] would report live by writing short pieces on a platform that we created.[43] The orchestration[44] of a successful show, with a participating 'crucial network', triggered reflection, which was the basis for transition and new actions to emerge. The editing made it possible to share

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[37] When we shared these findings with the Public Health Department in 2023, they saw multiple applications, including supporting communities in times of crisis. Earlier in 2025, the Rhythm Spheres concept, in particular, struck a chord with the gathered crisis managers of different municipal departments at the Amsterdam fire station De Willem. In the coming months, we will further explore how the rhythm research can inform Amsterdam's crisis scenarios.

[38] https://www.paradiso.nl/en (accessed 25 April 2025)

[39] The Galactic Hacker Party was known by two names. The other name was the Amsterdam Conference on Alternative use of Technology (ICATA '89). The latter was sponsored by UNESCO. Co-curators were Rop Gonggrijp, Patrice Riemens.

[40] Co-curators were Rop Gonggrijp, Patrice Riemens, David Garcia and Heleen Riper.

with those who were not present.[45] In my experience, it is this 'collaborative authoring of outcomes' that has made all the difference in the shows that I have orchestrated.[46]

Following my cultural and intellectual heroes, I aimed to create convincing mosaics in which counter voices and counteractions were all important as the leading motivation. I even hired actors to create disturbances. For example, the brave Surinamese 'Taante', created by Jetty Mathurin[47], would appear during a serious debate, asking questions from the audience and demonstrating the external voices that were excluded from the debate. Bringing different perspectives together in a meaningful way was a great cultural challenge. It required a full commitment to orchestration as a skill, and also as a way to prepare for the magic that could happen if everyone present were to lose their sense of time and become fully engaged.[48] This is when an audience is in flow.[49] And this flow is the ultimate experience that I wish for students to be part of during their studies. Such a flow isn't the result of an automatic process. It requires continual personal care and attention.

Challenging imagination in the Waag

There was a tumultuous change from a dark and grim end to the 1980s and the Cold War to an internet full of promises for

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[41] Nevejan C., (2007). *Presence and the design of trust,* diss. University of Amsterdam.

[42] Members included Geert Lovink, Bas Raijmakers, Geke van Dijk.

[43] In 1990, Rolf Pixley created a first visual interface to the Internet by using HyperCard stacks that were sent to the nodes that we were connected with, via the universities network: Paradiso, AIDS wards in academic hospitals in Amsterdam, New York and San Francisco, a few bookshops and a gallery. Pixley was part of the cybernetic circle centred around prof. Gerard de Zeeuw.

[44] Orchestration refers to the *mis-en-scène*, the dramatic development over time, special effects, food and drinks and any other element in the environment that affects the feeling of visitors.

[45] In a publication on innovating learning processes in educational institutions, I argued that you need to do three things: Orchestrate, Edit and Reflect.

network collaboration, and to a booming era in the early 1990s, which was characterised by a tsunami of commercial interests and many people with dollar signs in their eyes, and no interest whatsoever in the public value and societal contribution of the new technologies. This is what brought Marleen Stikker and myself together to reflect.[50] We realized that both the democracy and the public domain that we cherished were at risk. Therefore, we decided to join forces and set up the Society for Old and New Media. This was the predecessor of the current Waag Futurelab,[51] an independent media lab to advocate for technology that would contribute to a resilient public domain and make democracy stronger, more inclusive and more fun, too.[52] Convinced that we needed to challenge the current imagination, we made many pilots and demos to trigger an alternative imagination to the dominant Silicon Valley paradigm.[53] Artists, designers, hardware and software developers, and many students worked with us. The Waag became an appreciated independent media lab/think tank/design agency.[54] Today, the Waag Futurelab still plays a significant role in Dutch and European policymaking.

Sometimes confronted with apathy from academia, tunnel vision from the sciences, ignorance from politics, and an avalanche of societal disruption because of the increasingly ubiquitous presence of technology, we preferred to bring together people 'to show

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In Dutch these are three Rs: Regie, Redactie, Reflectie. These three Rs are very relevant for City Science.

Nevejan, C. (2001). *Onderwijsvernieuwing in de informatiesamenleving.* Onderwijs Research en Ontwikkeling, Hogeschool van Amsterdam

[46] Humphreys, P., & Jones, G. (2006). The evolution of group decision support systems to enable collaborative authoring of outcomes. *World futures,* 62(3), 193-222.

[47] https://nl.wikipedia.org/wiki/Jetty_Mathurin (accessed 25 April 2025)

[48] We would use any medium available, including broadcasting a phone via the PA. In the case of Press Now during the Yugoslavian war, we asked Dutch bands to play Yugo rock, which we broadcast with independent radio stations in the region, with B92 and the VPRO. In deep thinking conferences like The Next 5 Minutes on tactical television, or on the Unification of Germany,

and tell'. These orchestrations were what we came to formulate as Public Research – a methodology centred on bringing together diverse voices to co-create knowledge and action in public space. In Public Research, previous convictions are challenged and new avenues into the future opened. Understanding each other's ethics and formulating and sharing new values thereby takes place. Unlike Living Labs, where researchers define the questions and frameworks, public research invites participants into collaborative authorship. Unlike action research, it does not assume a predefined goal. Instead, two kinds of questions merge in public research. Questions about the truth and questions about what positive action is. It creates a stage where logic and ethics merge, where counter voices are crucial, and where personal reflection and public dialogue can lead to historical insight and meaningful action. Public Research challenges imagination and orchestrates for a 'collaborative authoring of the future'.

City Science in Amsterdam

In March 2017, I was appointed as Chief Science Officer (CSO) for the City of Amsterdam. At the time, this position was relatively new, for both the city government and universities. My predecessor, Hugo Fernandes Mendes, had laid the foundation by exploring the function of a CSO and where this post should be accommodated

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for example, we would bring together scholars, artists and activists from different cultures, all answering the same question. And when the famous Arab philosophers Nawal el Saadawi, Mohammed Arkoun and Hassan Hanafi were in the house for the conference on Decolonization of the Imagination, curated in collaboration with Jan Nederveen Pieterse, Oussama Cherribi and Philomena Essed, we asked them to also hold a session with the rioting Moroccan youth, which we approached through the youth organization Argan.

[49] Csikszentmihalyi, M. (2013). *Flow: the psychology of happiness.* Random House.

[50] In 1993, the graphical interface to the internet was formally launched as a browser, which you could download and install on your PC. This was a major moment in the popularisation of the Internet. It became visual and soon it also offered audio. In 1994, Marleen Stikker initiated meetings of hackers and the municipal government in de Balie, an Amsterdam cultural centre next to

within the city's organisational structure. He recommended placing the CSO directly under the municipal secretary, giving the position independence and access to board and management at the same time.

The idea of a CSO was inspired by the work of Erik Gerritsen, former municipal secretary of the City of Amsterdam. In his 2011 dissertation, he wrote about the importance of understanding power and human psychology when managing change in cities.[55] He wrote that to tackle complex urban challenges, cities need to combine persistence with seduction – change doesn't happen by force, but through attraction and vision. He believed in creating a 'wise city', one that remains optimistic, even in hard times, and uses knowledge as a tool for better governance.

A similar awareness developed in a variety of European cities. Cities increasingly depend on science to address challenges from housing to health and climate. The need for collaboration with different stakeholders, including universities and businesses, became paramount. Across Europe, the idea of a City Science Officer is gaining ground – someone who connects research and policy, not just to study cities, but to help improve them.[56]

Paradiso on the Leidseplein. They launched the first internet provider XS4ALL and the Digital City of Amsterdam. Both were an instant success. Hundreds of people took subscriptions and participated, enjoying the adventures that were offered online. The Internet seemed to spread with the speed of light in those days and commercial interest was booming. Future value became an important financial term, and flocks of eager boys jumped on the bandwagon. The big consultancies woke up by 1995 and hundreds of people were hired. Evangelists selling IT hardware and software were loud and received a lot of attention. Where hackers in Europe would adhere to ethical norms in the 1980s and early 1990s, as in the Chaos Computer Club, for example, by the mid-1990s most hackers earned considerable amounts of money advising here and there with consultancies, governments, intelligence services, cyber units, starting companies and selling them as soon as possible as well.

Sustainable knowledge infrastructure

In my inaugural address, I wrote: "The concept of the city as a 'collaborative authoring of outcomes' permits new perspectives on design processes and policymaking for urban development. In the collaborative authoring of outcomes, stakeholders, experts and those that are engaged, each play a role."[57] In the practices in many cities today, as in my Public Research before, I found that the collaborative authoring of outcomes is critical for creating impact. When all stakeholders who are affected by an urban challenge and all stakeholders who can change the status quo of that urban challenge, gather, then their respective being and bearing witness creates the ground for accepting responsibility for the collaborative authoring of outcomes. Subsequently, the research questions that emerge have an impact; and then the social, the technical and the governance tune to each other, and participation is related to capacity and capabilities. As a result, resilience emerges and creativity rules.

Building upon my rich experience with Public Research in Paradiso, I was able to bring the different stakeholders together as CSO. Science in the city works best when it is based on open dialogue, not political direction. So rather than setting the agenda, I focused on making space for conversations and collaboration at the heart of the urban challenges that we face. Instead of writing a general research agenda for the city, I invested these years in building a polyphonic and

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[51] The Society for Old and New Media was located in the Weigh House, in dutch 'De Waag', on the Nieuwmarkt in Amsterdam. This is the predecessor of Waag Society and the current Waag Future Laboratorium. In daily conversations, often only 'Waag' is said.

[52] When we started the Waag Society, we financed this venture with two partners in culture (Paradiso and De Balie), two partners in design education (HKU and the Sandberg Institute), two partners in business (Weekbladpers and Rabobank). Even though it was physically around the corner, the social science faculty of the UvA was not interested in participating in this collaboration. Nevertheless, the chair of the UvA, Sijbolt Noorda, did recognize our 'new niche' and gave us full support. He offered that Hans Bronkhorst and Teyung Fu from the IT department of the UvA would work with us for two years for two days a week to create the high-quality internet in the Waag.

sustainable knowledge infrastructure, which is resilient and trustworthy, on the one hand, and transparent and inviting for newcomers to engage with, on the other.

When speaking with CSOs from other European cities, the general experience suggests that one needs to combine scientific rigour with letting research questions grow from where the problems really are – in departments, schools, neighbourhoods, companies and organizations. This is where the knowledge is needed, where exciting complex questions emerge, where data and funding are managed, and where impact will occur.

openresearch.amsterdam

In any large city or region, it is difficult to find out who is working on what. Therefore, a transparent knowledge infrastructure is essential for researchers, professionals and civil servants in order to build upon each other's work. This is also necessary in order for newcomers to participate. A transparent knowledge infrastructure is crucial for handling urban challenges and for developing the necessary resilience for any crises to be faced. This is why I introduced openresearch.amsterdam, which is a growing platform for sharing knowledge that connects thinkers and doers from across all different domains in the City of Amsterdam.[58]

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[53] Barbrook, R., & Cameron, A. (1996). The Californian ideology. *Science as culture,* 6(1), 44-72.

[54] Newcomers and established artists and designers worked with us, like Mieke Gerritsen, Janine Huizinga, Yariv Alterfin and Marjolein Ruyg. The artistic students of the Sandberg institute gathered in our building. We became a design agency in demand and were rated among the ten best design agencies by the Milia multimedia conference in Cannes in 1995. We won the Rotterdam Design prize in 1996 with the Reading Table for Old and New Media. The Waag became a voice of significance in the Netherlands and Europe as well. Marleen Stikker is still in charge, contributing to the Dutch and European policies on technology in the public domain. I left the Waag after six years in 1999 to focus on the design of digital learning environments and joined the Hogeschool of Amsterdam. Even today, we have continued

Openresearch.amsterdam is local, social, digital, and autonomous. Its software is open source, even though it was not published on GitHub for municipal security reasons. In the 1980s and 90s, I was witness to a series of moments in which American tech drove off qualitative European initiatives in education and in the public domain, which is why we started the Waag. Now the challenge was how to create a platform that paid tribute to European values and laws, and to the authorship of all contributors, while connecting these and developing a governance that could sustain such dynamics.

Openresearch is based on the principles of storytelling and explaining how things work so that others can test or challenge them, which is the core of science and democracy.[59] This passion led to my 25-year engagement with the Amsterdam-based software for online storytelling, Anymeta, later named Zotonic and Ginger. The design of the interaction of the platform mirrored the structure of academic articles: title, summary, text, and keywords. Every story has an author who is accountable. Feedback is welcome – but never anonymous. The platform supports multimedia and promotes openness and dialogue.

Designing dynamics for online knowledge sharing

It all began in 2000 at the Hogeschool van Amsterdam, where I collaborated with Willem Velthoven and Marc Worrell to create the

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collaborating from time to time in the advocacy of a digital future that benefits a constitutional state.
https://waag.org/en/ (accessed 25 April 2025)

[55] Gerritsen, E. (2011). *De slimme gemeente nader beschouwd: Hoe de lokale overheid kan bijdragen aan het oplossen van ongetemde problemen* (p. 560). Amsterdam University Press.

[56] Since 2019, I have chaired the European City Science Initiative, which brings together CSOs from cities across the EU, who share lessons, reflect on our work, and collaborate with institutions like the European Commission and universities. Several reports have been published to highlight how cities play a unique role in shaping research and policy for solving urban challenges. City Science Initiative:
https://openresearch.amsterdam/en/page/115434/european-city-science-initiative-csi-eu (accessed 25th April 2025)

OroOro web during a large three-day event for over 1000 educators. It allowed teachers to build and share portfolios. Long before Facebook, we had built a social learning network. Teachers wrote stories on teaching, connected by keywords, and they reflected on each other's work – unknowingly creating an interactive tool for policymaking.

After defending my thesis in 2007, I uploaded the entire text into Anymeta, tagging all 650 paragraphs like a true monk. The outcome showed how paragraphs from different chapters created new meanings in different orders, yet they were still consistent with the overall idea. The semantic web of AnyMeta made it possible for the underlying ontology in my work to emerge. It was a significant semantic experiment, which made me decide to push the limits of the semantic web even further.

In a subsequent interdisciplinary study into witnessing, I connected the stories of 44 authors from academia, the arts, journalism and design.[60] I ensured that each piece stood alone and connected to others on a paragraph level across domains, thus forming a narrative landscape, which refined the YUTPA framework that I had introduced in my 2007 PhD research. By searching through academic, artistic, and experiential lenses, I could identify key trust factors in the four YUTPA dimensions – Time, Place, Relation, and Action – which I then visualized with designer Chin-Lien Chen. Subsequently, I used this research site in teaching, with students developing story portfolios as part of their assessments.

City Science for Urban Challenges: https://openresearch.amsterdam/en/page/63027/2020-csi-city-science-for-urban-challenges (accessed 25th April 2025)
Urban and Regional Research Ecologies: https://openresearch.amsterdam/en/page/85094/csi-2022-urban-regional-research-ecology (accessed 25th April 2025)
Social Impact for Climate Justice: https://openresearch.amsterdam/en/page/107704/social-impact-for-climate-justice (accessed 25th April 2025)

[57] Fung, A. (2006). Varieties of participation in complex governance. *Public administration review,* 66, 66-75.

[58] Mission, vision, governance and history are documented here: https://openresearch.amsterdam/en/page/15794/about (accessed 25 April 2025)

[59] Testing is validating and formulating in such a way that others can disagree with you is falsification in scientific terms.

All of this work was the basis for the development of openresearch.amsterdam. This semantic web now hosts over 18,000 studies, attracts over 30,000 monthly visitors, and connects 500 daily attentive visitors with AI-powered tools. It is a socio-technical system where governance, software, and editorial organization are closely linked. Contributors are accountable for their work and connected to others through shared themes. It is a living archive and collaboration tool, helping researchers and practitioners align efforts on urban challenges and public knowledge.

The governance of openresearch.amsterdam is based on a cooperation agreement between a large number of institutional partners in which behaviour on the platform is considered part of the employment contract. In this way, the professional quality of the openresearch.amsterdam is guaranteed. Over 300 editors in the partner organizations publish research and policy work conducted by their respective institutions, which may be relevant to others in the Amsterdam Metropolitan Area. These editorial and networking processes are supported and inspired by a small, agile, core editorial team, the team CSO.[61]

Orchestrating the variety of networks in societal academic working groups, in thematic programs and special projects requires a cultural change in which the diversity of participants is essential. Diversity in age, gender, socio-economic background, cultural heritage, capacities and capabilities defines the resilience and potential success of

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[60] At TU Delft, I found a creative, risk-taking environment where innovation thrived, with prof. Frances Brazier at the Participatory Systems group. Here, with support from the European Institute of Technology, I could explore 'witnessing' across disciplines. Together with Satinder Gill from Cambridge University, in a special issue of *AI & Society, Journal for Knowledge, Culture and Communication* we invited thirteen scholars to answer the question, W*hat happens when one is witness to the other?* At the same time, thirteen artists created work based on the same question. This was supported by the Amsterdam Fund for the Arts. I also interviewed twenty professionals in law, journalism, and design. All this material was uploaded into Anymeta and made accessible on the website www.being-here.net. With designers Monica Waalwijk-de Carvalho and Henny Scholten, we the made a book from the website, which was launched in the Apple Art Centre with Ann Demeulemeester.

these knowledge networks. This is essential for democracy, and like democracy itself, it can never be taken for granted. It needs daily personal care to motivate people in large organizations with intense hierarchies to have the courage to share. It is remarkable that the boards and directors of the 32 partners have entered into this collaboration, which is why Dare to Share is the motto of openresearch.amsterdam.

The Chief Science Officer's role

An important element in building a local sustainable knowledge infrastructure is to find ways for different kinds of knowledge and disciplines to work together. I wanted to create productive partnerships between researchers and civil servants in government, education, and social organizations, making research more useful. Every week, I worked on matchmaking – bringing people together from different fields to solve specific problems. These 'serious matches' led to 15-20 collaborations each year. These initiatives helped to bring in funding, avoided costly policy mistakes, and strengthened Amsterdam's reputation as a forward-thinking city.[62] Many professionals saw how research could improve the way they could approach urban challenges. The contribution of university professors who were working closely with different departments in the municipal government, was important here. Each year, I also launched a thematic program to spark reflection and collaboration.[63]

Nevejan, C., & Gill, S. P. (2012). Witnessed presence. *AI & society,* 27, 1-4. Nevejan Caroline. (2012) *Witnessing you, on trust and truth in a networked world.* Participatory Systems Initiative, TU Delft.

[61] The CSO team is the core editorial team of openresearch.amsterdam. It consists of six domain editors – covering the city council, physical environment, social domain, districts, digitalization, and art and culture – as well as a product owner and the CSO.

[62] For example, the Energy Lab Zuidoost has acquired more than 25 million euros in national and European subsidies since it started in 2020. In 2019, as CSO, I initiated a pop-up lab and organized an energy conference as public research. During this process, I found the future director of the Energylab, Annoesjka Nienhuis, and the political will to support it via Ellen Nieuwboer. I then invited different scholars to participate and coached them in the process of engaging with the lab. After a few years, things were going so well

As CSO, I initiated a new arrangement with the human resource department, which allows four civil servants each year to pursue a PhD.[64] Currently, thirteen municipal PhD candidates are studying topics of strategic importance to the city. The internal motivation of these municipal PhDs is very high, often because they choose to study the issue with which they are confronted in their work. The civil servants can work with professionally obtained municipal data, which saves them time, and which other researchers hardly have access to. The performance of the municipal PhDs matches national benchmarks for full academic PhDs. The municipal candidates are older and more experienced in production values and making deadlines than students who pursue their PhD immediately after obtaining a master's degree. This year three candidates have successfully defended their PHD already: municipal monitor designer Juan Carlos Goilo on Information Actors[65], youth-nurse Siegnella Concincion on a new methodology for working with children with obesity[66], and policy advisor Anne Sastromedjo on power relations in the shaping of local administrative and political processes[67].

In each of the successful dissertations that have been defended so far, it has been found that the scientific reflection of these civil servants on the policy processes they are part of offers a unique perspective on specific and current city policy issues. At the same time, the scientific work informs the practices of the civil servants, which leads to a better

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that my contribution was no longer necessary. In recent years, I have only attended some student presentations, the annual conference and have been an advisor from time to time. In 2024, after 5 years in existence, all structural partners of the Energylab Zuidoost (municipality, universities (UvA, VU, TUD), AMS-Institute, Hogescholen) have signed a new collaboration agreement for the next 5 years. The local impact of the Energy Lab Zuidoost is appreciated by the residents: https://openresearch.amsterdam/en/page/36675/energy-lab-southeast (accessed 25April 2025)

[63] These special projects are all documented at openresearch.amsterdam: Flying Money (2018), Map for democracy (2019), Values for Survival (2020–2022), Shaping Trust (2023), How Do You Know? (2025): https://openresearch.amsterdam/en/page/57393/bijzondere-projecten-cso (accessed 25th April 2025).

understanding and, in some cases, to adaptation of policies and practices. For example, the dissertation of the youth-nurse Siegnella Concincion has led to an adaptation of the protocol for youth nurses for listening to the children they are treating. It seems that with this arrangement for municipal PhDs, new avenues have been found for the improvement of policymaking.

In retrospect, my role as Chief Science Officer (CSO) in the City of Amsterdam was determined by a combination of positioning, collaboration, and mindset. Being embedded in the hierarchical structures of both the city and the university allowed me to navigate across departments and engage with diverse perspectives. Regular reflections with workers, citizens, researchers, civil servants, directors, and academic leaders helped to anticipate needs before they surfaced. From the start, policy alignment was key; thanks to policy advisor Ida de Freitas, and the collaboration with the CTO Ger Baron and CIO Mark Crooijmans, our work was politically and administratively grounded.

National collaboration also played a critical role. Through the City Deal 'Kennis Maken' program, we exchanged ideas with peers across the country. Rather than reinvent the wheel, we drew inspiration from older methodologies, like the academic-societal working groups of the 1970s. And openresearch.amsterdam, for example, was based on the software of several cultural institutions in Amsterdam in the past 25 years.[68]

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[64] The detailed arrangement can be found here: https://openresearch.amsterdam/en/page/41809/becoming-a-phd-candidate-at-the-city-of-amsterdam (accessed 25 April 2025)

[65] Juan-Carlos Goilo, who is a civil servant working on the monitor for a circular economy, defended his thesis on *Information actors, between modernity and coloniality in times of climate change.* In this design ethnography of building a circular economy monitor in Amsterdam and Curacao, both cases use the data from CBS and the doughnut model of Kare Raworth. Goilo shows how modernity creates tunnel visions and how coloniality causes fragmentation. He argues for the development of a new symbiosis between these two dynamics
Goilo, J.C., 2024. *Information actors, between modernity and coloniality in times of climate change,* dissertation, University of Amsterdam.

I deliberately maintained a neutral stance, separating my CSO responsibilities from my own research at the University of Amsterdam. I was not there to judge content or steer decisions based on personal agendas. My role was to connect people, frame questions, and help initiatives to take shape. Interestingly, having no research budget to allocate turned into a strength – it meant that I could build trust and act as a facilitator, not a gatekeeper. Of course, independence also meant facing pushback. At times, I was sidelined or met resistance. But I stayed focused, remembering the wise words of a neighbour: "Do not forget to pray for those in power." Leadership, after all, isn't easy – and patience matters. Finally, my background in cultural entrepreneurship brought an optimistic, improvisational spirit. Systems may be slow, but people within them still hunger for fresh ideas and meaningful connection.

Traces of impact

When I consider the impact of my work, which is actually too early to say, I am thankful to leave behind the solid start of a sustainable knowledge infrastructure for Amsterdam. In this closing lecture, I have argued that defending the polyphonic space for being and bearing witness to one another is crucial for our collective human future. When bearing witness, we need to share rhythms, and as a result we can share trust and truth and locally counteract disinformation and systems control. It is to facilitate these processes that I started openresearch.amsterdam.

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[66] Siegnella Concincion is a civil servant in the Public Health Department and for more than twelve years she has worked as a youth nurse in the district of Amsterdam Zuidoost. In her dissertation *Building communicative spaces with children in paediatric obesity care and research,* she convincingly argues that children need to have a voice and be listened to in developing strategies to counteract obesity. As a black woman, and speaking different languages, she has access to families that are usually non-responsive to any municipal or governmental request. Concincion argues that children are experts on their own body and their own lives. Building upon Participatory Action Research, the thesis developed a clear strategy for helping children to express themselves, which can be applied by trained Youth Health Care Nurses. As a result of this research, Concincion has developed a new protocol for youth nurses, which has now been integrated into the standard reporting procedures that all youth nurses use.

The building and orchestrating of openresearch.amsterdam has been a success beyond what I had hoped for. After being engaged for over 25 years in designing the social technical system, openresearch.amsterdam, it is a real blessing to see it now thrive. Supported by over 35 partners, including all the major knowledge developers in the Metropolitan Region of Amsterdam, and including cultural researchers as well, it demonstrates that collaboration in diversity can work. Together with the different networks and the many people around us, we have created something lasting, rooted in trust, curiosity, and creativity. That spirit continues to guide the CSO team today. I am therefore looking forward to getting to know the work of my successor, Doutje Lettinga. She will continue to build on this sustainable knowledge infrastructure and will specifically focus on the Urban Dynamics of Rights and Justice.

The sustainable knowledge infrastructure has been built in the many networks around openresearch.amsterdam. People who understand each other's processes, and people who know how to work together. Such a local knowledge infrastructure is a necessary support for handling the crises that we see beginning to dawn. Such a sustainable knowledge infrastructure is reflective, diverse and rhythm based. In my 8 years as CSO, I learned that such an infrastructure needs to be secured at the top, but without the support of the people from the field, it would not exist. The CSO and her team play a pivotal and continual role in inspiring and connecting top and bottom.

Concincion, S., 2025. *Building communicative spaces with children in paediatric obesity care and research.* The importance of children's perspectives in integrated care during and after the COVID-19 pandemic, dissertation, University of Amsterdam

[67] Anne Sastromedjo has been a policy advisor to mayors and aldermen for over thirty years. In her dissertation, *The ban of governance. An analysis of the operation of power in policy choices from 1978 to 2018 on the structure of the government of Amsterdam,* Sastromedjo provides an impressively detailed picture of the development of the governance model for the city of Amsterdam over the past forty years. The study is based on many interviews with mayors, aldermen and others and the analysis of hundreds of documents. The study exposes, as never before, the party-political power struggle in both the local and the national political class.

Another significant result is the arrangement for municipal PhDs. While these are 'nice to have' from a human resources perspective, more importantly they open up new kinds of research, in which civil servants reflect on the policy processes that they are part of. As a result, new avenues for policymaking are emerging. An interesting detail is that these municipal PhDs are older and come from more diverse backgrounds than the university is used to facilitate. The first two graduated candidates come from Caribbean families and the third candidate comes from Surinam. Also, doing a PhD later in life is a special opportunity for people who first spend most of their private time on raising children and then later in life want to reflect in a scientific way on the work they have done.

As of the 1st of January 2025, the City Science Initiative that I founded and chaired for more than 5 years has become a formal part of Eurocities.[69] Two European university networks, UNICA and AURORA, also joined. This international collaboration on formats and methodologies for City Science has had an impact on European urban policies and it supports the many CSOs in their own practices. Soon, any city without a CSO will find themselves falling behind.

Sastromedjo, A., 2025. *De ban van bestuur. Een analyse van de werking van macht bij beleidskeuzen van 1978 tot 2018 over de inrichting van het bestuur van Amsterdam,* dissertation, Universiteit van Amsterdam.

[68] Mediamatic Lab, which invented AnyMeta, orchestrated a developer's group between its clients. AnyMeta editors would gather once in three months and make sure their different contracts were beneficial to each other. A location feature developed by one client, or a keyword feature developed by another, could be used by all participating clients. Clients included: the Amsterdam Museum, Jewish Historical Museum, and the Hogeschool van Amsterdam.

[69] Prof.dr. Maria Arche from Greenwich University has offered to be the new chair of the City Science Initiative and will coordinate the 4th report *Blue prints for Messy Cities*.

Finally, my rhythm research has been an amazing trajectory, which I will continue in the years to come. While perhaps seemingly simple, knowledge of the dynamics of different rhythms opens up a plethora of possible solutions. Currently, we are looking at how rhythm analyses can inform crisis scenarios and contribute to social resilience.[70]

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[70] Building on personal and professional insight, Syrian architect Marwa Al-Sabouni analyzes how the built environment may contribute to people's well-being and survival by stimulating attaining continuity, search for abundance, achieving acceptance, a kaleidscope of meaning and relations between urban an rural communities. We are currently studying how rhythm interventions can significantly contribute to these dynamics.
Al-Sabouni, Marwa. (2001). *Building for hope, towards an architecture of belonging.* Thames & Hudson Ltd.

Acknowledgements

Being CSO and chair of Designing Urban Experience has been a meaningful role in my life. I have had the chance to work with talented, curious, and committed people from across the city and beyond. I've worked with teams driven by vision, compassion, and a deep sense of justice. It's a true joy to be in an environment where different talents are valued, where fairness matters, and where we walk the path together. To all of you here today – my fellow travellers – thank you for the joy we've shared.

As CSO and chair of Designing Urban Experience, I thank the different mayors and aldermen, and the different chairs and boards I've worked with. Thank you for the trust you've placed in me, it has been my honour to work with you. As a resident of Amsterdam, I want to thank you for daring to share and support openresearch.amsterdam. It embodies the freedom and open dialogue that is in Amsterdam's DNA, but which should never be taken for granted. It is vital for any city, and quite unprecedented in the world.

Thank you to the editors of openresearch.amsterdam and thank you to my colleagues who make the networks thrive upon which Amsterdam can build. You are the sailors who are making Amsterdam ready for the next storms.

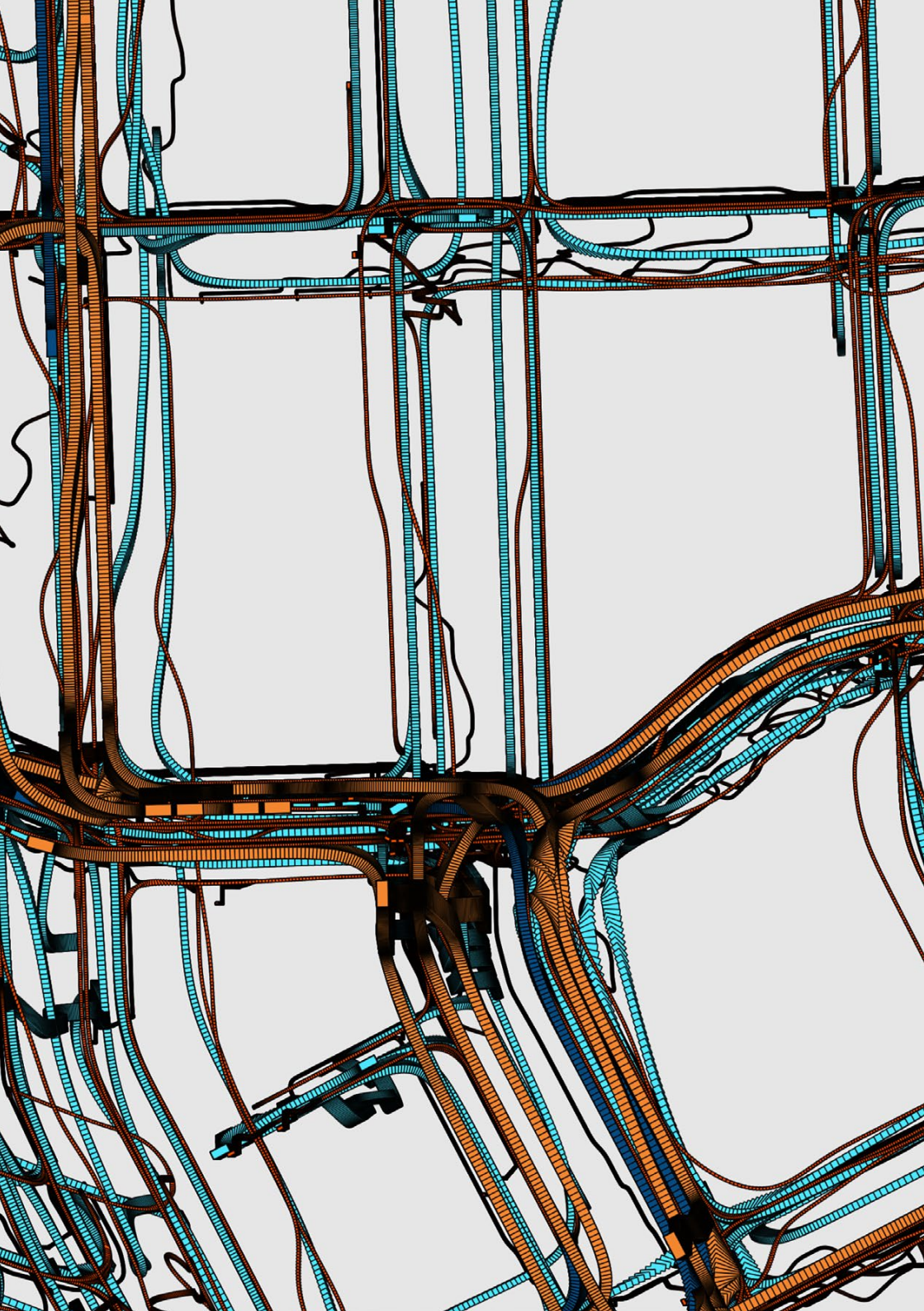
Thank you to my CSO team for your commitment and charm in making it worthwhile for others to contribute to a larger whole. We had lot a fun and faced lots of challenges together.

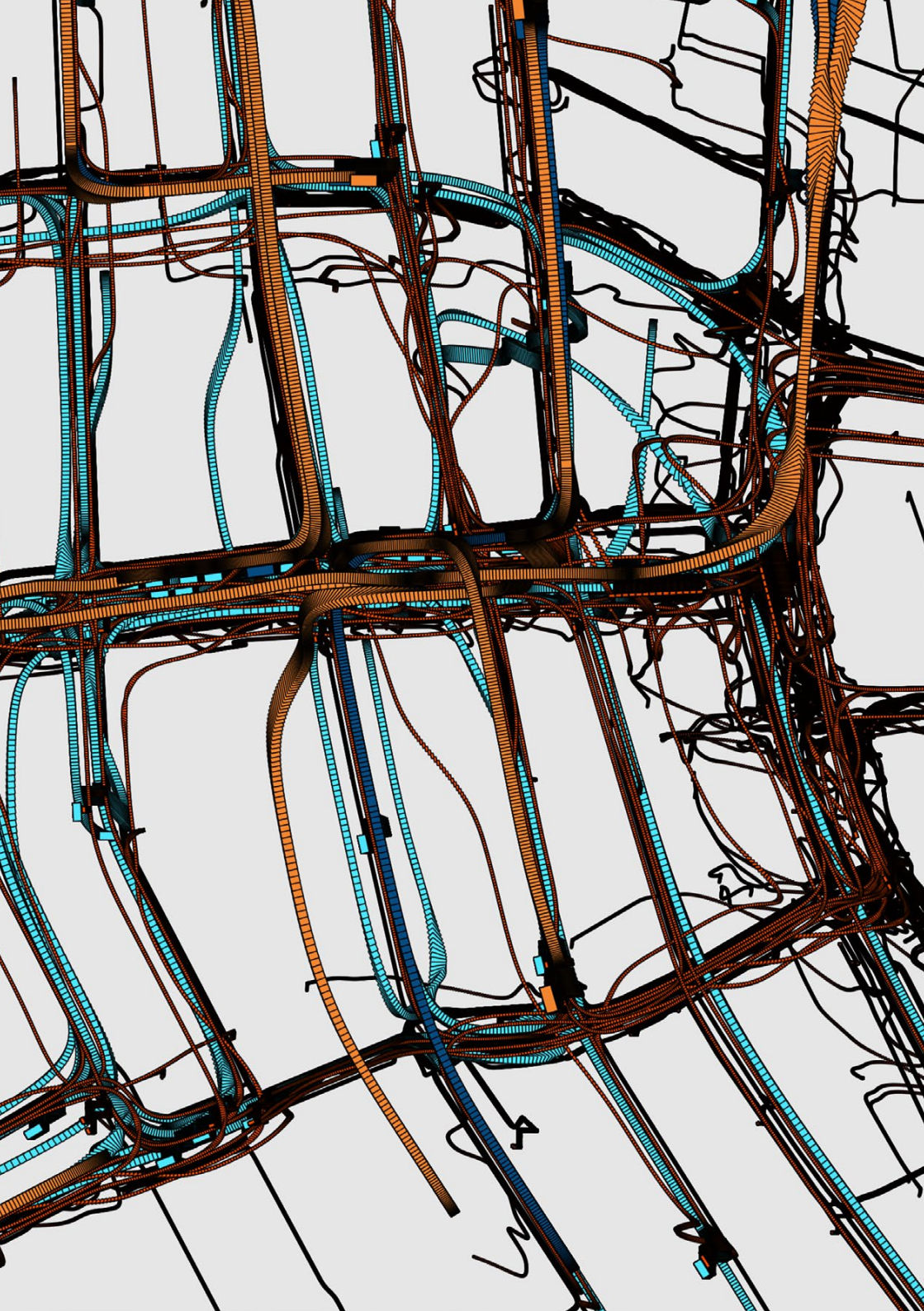
And thank you to the colleagues who I met at the many coffee machines in different buildings across town. Thank you for those 'passing' moments full of smiles, jokes and wise words to keep each other sharp and keep each other going.

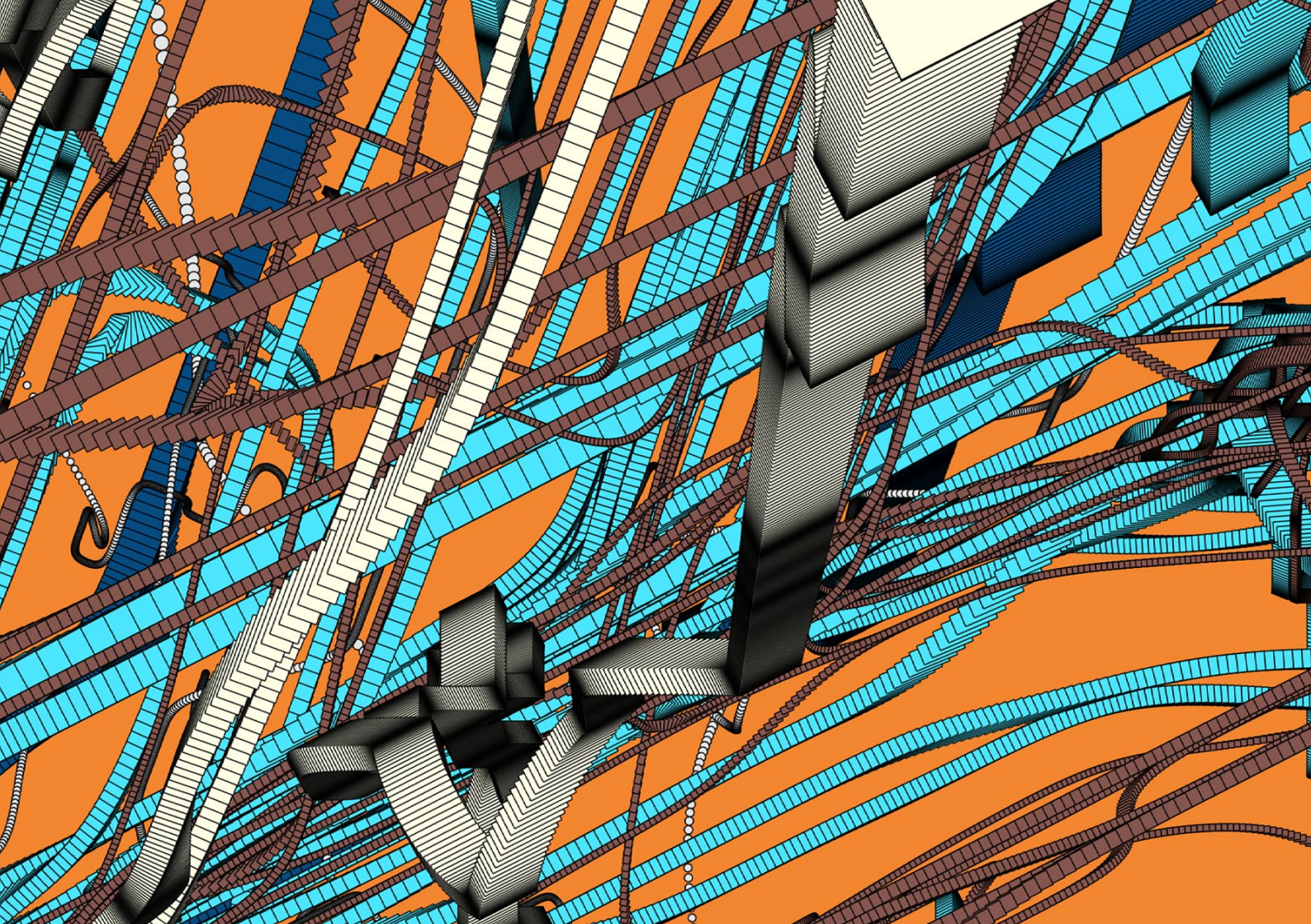
I thank my mother, my love, my family and my other families and my dear friends. I thank you for daily inspiration, trouble, mischief, care and laughter. You make my life worthwhile.

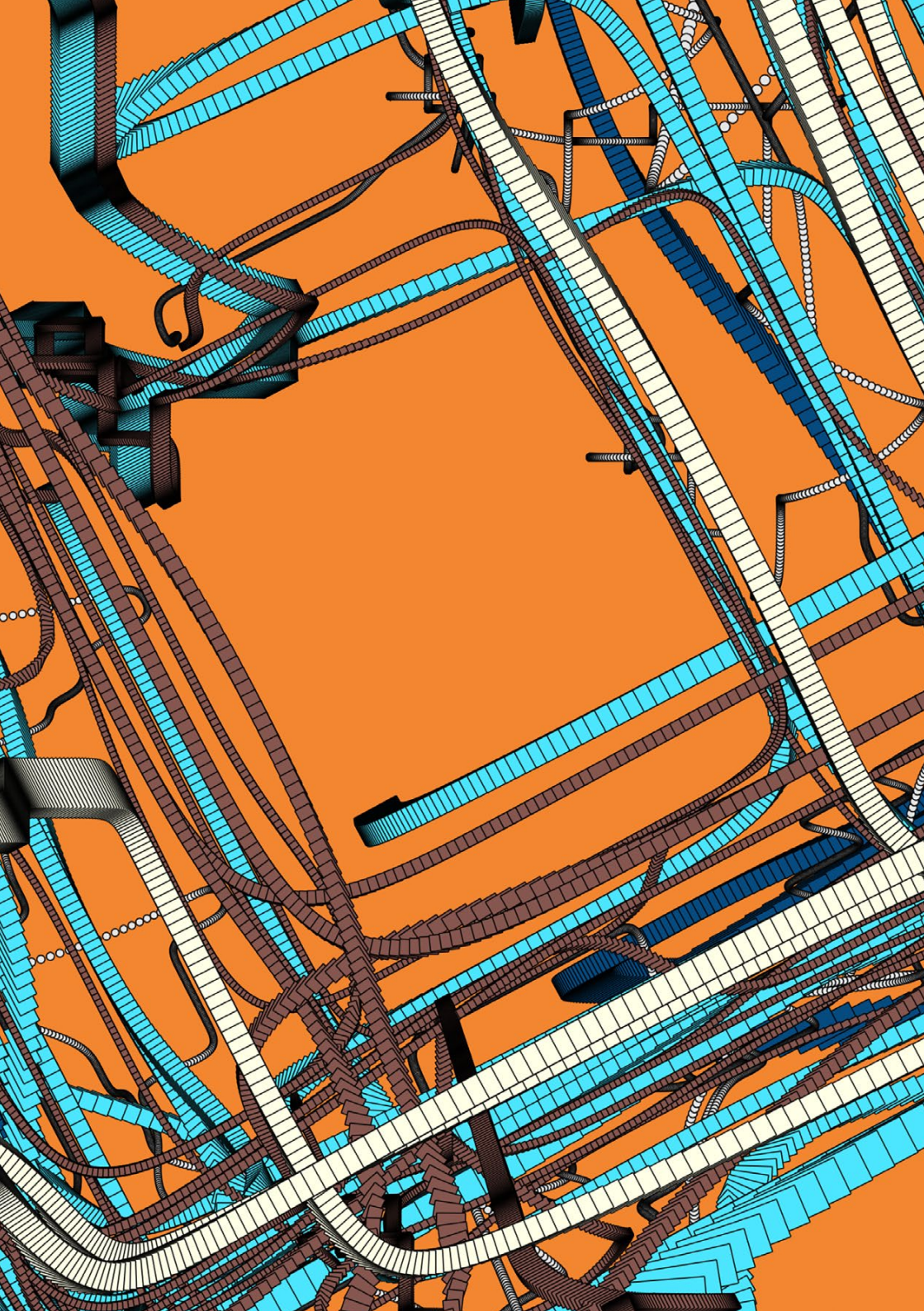
With my final words from this podium, I would like to thank everyone who nurtures niches, and who dares to take risks to engage with strength, space, compassion, curiosity and courage. You have been, are, and will always be, my greatly appreciated allies.

Thank you.







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Senex, Hbn.
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The Muslin.
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